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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,940	11/27/2000	Yuji Hiraoka	30012740-02	5043

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EXAMINER

BRAUN, FRED L

ART UNIT PAPER NUMBER

2852

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,940

Applicant(s)

Hiraoaka et al

Examiner

Fred L Braun

Group Art Unit

2852

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on April 29, 2002
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-10 ~~is~~ are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1, 2, 4, 6, 7 and 9 ~~is~~ are rejected.
- ☒ Claim(s) 3, 5, 8 and 10 ~~is~~ are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. The abstract appearing on page 9 of the response filed on April 29, 2002 is objected to since it is not verbatim the proposed amended abstract appearing on page 2 of said response. Correction is required.
3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zin or Hansen.

Applicants statements in the remarks filed on April 29, 2002 have been given careful consideration; however, they are not deemed persuasive for the reasons set forth hereinbelow.

More specifically, applicants allege on pages 5 and 6 of their remarks files on April 29, 2002 that the patents to Zin and/or Hansen do not disclose or fairly teach an air duct provided around the elongated opening of the developing unit containing air flow therein having a predetermined air pressure to hold a liquid developer within a space "substantially" between the elongated opening and the image bearing surface as now recited in base claim 1, for example. In response to this allegation, it is respectfully submitted that the term or expression "substantially" does not limit the boundaries to which the liquid developer may be present between the elongated opening and the image bearing member to the exact boundaries or parameters defined by the elongated opening since the parameters or boundaries of the image bearing member are greater than those of said elongated opening. In other words, the base claim 1 is of such breadth that it does not preclude the excess liquid developer from being collected by a channel, element 37 (Fig.

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4) of Zin and/or element 77 (Fig. 4) of Hansen, intermediate the elongated opening and the air duct which surrounds the perimeter of the elongated opening since the entire area between the elongated opening and the air duct can be used to apply liquid developer to the image bearing member which is present in said last mentioned area. Accordingly, it is again submitted that element 11' (Fig. 4) of Hansen is the claimed developing unit having an elongated opening 41 (Fig. 4) for applying developing liquid to the electrostatic latent image carrier 13' (Fig. 4) and element 54 (Fig. 4) the air duct around the elongated opening 41 of the developing unit which impinges air at a predetermined pressure upon the developing liquid to prevent the excess developing liquid from escaping from the developing gap or region formed by the developing unit 11 and that column 3, lines 16 through column 5, line 30 of Hansen suggests to one having ordinary skill in the art that the air ducts 54 (Fig. 4) of same which have a predetermined pressure in the range of 5 to 20 pounds per square inch will permit the toner particles to be electrostatically retained on the image bearing surface and allow the volatile solvent or liquid carrier to evaporate or vaporize into the surrounding area or atmosphere. With respect to the patent to Zin, it is again submitted that element 35 (Fig. 4) of same is the elongated opening in the developing unit 11' (Fig. 4) which applies developing liquid to the latent image carrier 13' (Fig. 4) and element 43 (Fig. 4) the air duct around said elongated opening which impinges air at a predetermined pressure on the developing liquid to prevent excess developing liquid from escaping from the developing gap or region formed by the developing unit 11' and that column 3, line 10 through column 4, line 25 of same suggests to one having ordinary skill in the art that the

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air ducts 43 (Fig. 4) of same, which have a predetermined pressure in the range of 5 to 20 pounds per square inch, will permit the toner particles to be electrostatically retained on the image bearing surface and allow the volatile solvent or liquid carrier to evaporate or vaporize into the surrounding area or atmosphere. With respect to claim 2, it is submitted that it is obvious to one having ordinary skill in the art that the air duct of Hansen must inherently have a means for controlling the air pressure since the air may be supplied at less than 5 pounds per square inch (column 4, lines 31-38). With respect to Zin, it is further submitted that the air duct of same inherently has a means for controlling the air pressure since the air is supplied at approximately 5 to 20 pounds per square inch (column 3, lines 10-19).

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zin or Hansen as applied to claims 1 and 2 above, and further in view of Denton et al.

It is noted for the record that claim 6 appearing on page 8 of applicants response filed on April 29, 2002 is verbatim originally filed claim 6 and not the proposed amended claim 6 appearing on pages 3 and 4 of said response. The patent to Denton et al suggests to one having ordinary skill in the art that a plurality of developing units 26, 28, 30, 32 (Fig. 1), each having an elongated opening 56 (Fig. 2), be disposed adjacent to a moving image-bearing surface of a photoreceptor which passes the plurality of developing units in succession in order to develop the latent image on said photoreceptor wherein each of said plurality of developing units contains a liquid developer of a different color so that a color image on the photoreceptor can be developed.

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Therefore, to provide the developing device of Zin or Hansen with a plurality of developing units each containing a liquid developer of a different color adjacent to the moving image-bearing surface of same so that the image bearing surface passes adjacent to said plurality of different colored developing units in succession in order to develop the color images on the image-bearing surface, as suggested by Denton et al, would be an obvious modification of the prior art to one having ordinary skill in the art at the time applicants invention was made.

Alternatively, to provide the plurality of color developing units of Denton et al with an air duct around the elongated opening 56 (Fig. 2) of each of the respective ones of the plurality of developing units so that the liquid developer is retained adjacent the elongated opening while depositing the toner particles on the electrostatic latent image on the image-bearing surface of the photoreceptor, as recited in proposed claim 6 on pages 3 and 4 of said remarks, as suggested by Zin and/or Hansen, would also be an obvious modification of the prior art to one having ordinary skill in the art at the time applicants invention was made.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zin or Hansen as applied to claims 1 and 2 above, and further in view of Caruthers et al.

The patent to Caruthers et al shows that it is well known in the art to provide a liquid electrophotographic developing apparatus with a plurality of developing units 15A, 15B, 15C (Fig. 1) for supplying different colored developing liquids via an elongated opening 24 (Fig. 1) to the latent image on the image carrier 100 (Fig. 1) to develop said image, and that it is also known to provide the developing apparatus with a sensor 40 (Fig. 1) for controlling the flow of liquid

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toner to said elongated opening 24 of same by controlling the opening and closing of the liquid supplying valves 16A, 16B, 16C (Fig. 1) of same.

Therefore, to provide the developing apparatus of Zin or Hansen with a plurality of developing units for supplying different colored developing liquids to the elongated opening of same in order to develop the latent image on the image carrier and a sensor for controlling the opening and closing of the liquid supplying valves for same, as suggested by Caruthers et al, would be an obvious modification of the prior art to one having ordinary skill in the art at the time applicants invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zin or Hansen in view of Denton et al as applied to claims 6 and 7 above, and further in view of Caruthers et al.

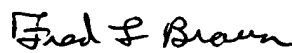
The reasons stated in the rejection of claim 4, supra, with respect to what is suggested by the patent to Caruthers et al to one having ordinary skill in the art are hereby repeated and incorporated herein in their entirety by reference thereto.

7. Claims 3, 5, 8 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication should be directed to Fred L. Braun at telephone number (703) 308-0128.

Braun/ek

05/19/03


FRED L. BRAUN
PRIMARY EXAMINER
ART UNIT 2852